



CIRCUIT BOARD HAVING IMPROVED
SOLDERING CHARACTERISTICS

CROSS REFERENCES TO ^{RELATED} ~~CO-PENDING~~ APPLICATIONS
[0001] None.

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BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0002] The present invention is for a circuit board,
and more particularly, is for a circuit board having improved
soldering characteristics with respect to components which can
10 be secured to a circuit board such as by soldering.

DESCRIPTION OF THE PRIOR ART

[0003] Prior art circuit boards often utilize wave
soldering techniques to flow liquidized solder at a raised
temperature along one surface or more of a circuit board to
15 effect multiple solder joints between the soldering pads of
the circuit board and the leads of one or more electrical or
electronic components such as, but not limited to, a light
emitting diode. Maintaining the quality of a suitable solder
joint can be problematic in that a cold solder joint may be
20 produced when solder cannot flow fully into the region of
intended solder flow. Such a problem can be caused due to
limited or non-existent gas flow and breathing within or above
the region of intended solder flow, such as caused by the
region of intended solder flow being a closed space having a
25 pneumatic-like seal whereby solder flow cannot reach the
region of intended solder flow, or if the solder does reach
the region of intended solder flow, the heat is dissipated due
to slow movement of the solder before sufficient heating of
the solder joint takes place. Additionally, air or other

SUMMARY OF THE INVENTION

[0004] The general purpose of the present invention is to provide a circuit board having improved soldering characteristics.

5 [0005] According to one embodiment of the present invention, there is provided a circuit board having improved soldering characteristics having raised structure consisting of spacer pads arranged to provide for vertical distancing of electrical or electronic components from the component side
10 planar surface of the circuit board to create a vented space between the planar surface of the circuit board and the body of an electronic component as well as a slightly increased size space at the solder station(s). The spacer pads, which can be of different forms, are located in close proximity
15 about the regions where the components are to be located on the component side of the circuit board. One form of a spacer pad can be a stand alone spacer pad and another form can be a spacer pad juxtaposing a solder station, referred to as a terminal spacer pad because of its near location to the solder
20 station or "terminal." Regardless of the form of spacer pad, whether a stand alone spacer pad or a terminal spacer pad, the upper surface of each spacer pad projects a like distance above the planar surface of the circuit board to provide for component spacing from the planar surface of the circuit
25 board. More importantly, such spacer pads raise the lower surface of the component above the levels of the solder stations so that venting is allowed and provided extending upwardly through the circuit board at the upper region of the circuit board at the solder stations. Such venting allows for
30 escaping of gases through the upper regions of the solder
[station] ^{STATIONS} to negate a vapor lock, thus allowing unimpeded flow